ASSIGNMENT 3

Textbook Assignment: "Fire protection systems" and "Water Treatment and Purification." Pages 8-29 through 9-13.

3-1. You are maintaining a halon fire protection system. You should consult a person in what organization for a system conversion?

1. NFPA
2. EPA
3. OSHA
4. Engineering

3-2. Installation of a new halon 1301 system is prohibited without special approval from whom?

1. NAVFACENGCOM
2. EPA
3. ROICC
4. Base fire chief

3-3. The production of halons will be eliminated by the year 2000?

1. True
2. False

3-4. What length of time delay, in seconds, is built into a halon system actuator?

1. 10 to 30
2. 10 to 45
3. 15 to 60
4. 20 to 45

3-5. Regardless of the method being used, what device must be attached to the releasing mechanism?

1. An auxiliary fan
2. A control valve
3. A light
4. An alarm

INSPECTION AND TEST PERIODS

A. Weekly

B. Monthly

C. Quarterly

D. Semiannually

E. Annually

Figure 3A

IN ANSWERING QUESTIONS 3-6 THROUGH 3-8, REFER TO FIGURE 3A.

3-6. Halon and carbon dioxide nozzles.

1. A
2. C
3. D
4. E

3-7. Weighing cylinders.

1. A
2. B
3. C
4. D

3-8. Leakage of devices and connections in a low-pressure carbon dioxide system.

1. A
2. B
3. D
4. E

3-9. You should perform a hydrostatic test on cylinders and hoses at what maximum time interval, in years?

1. 5
2. 7
3. 8
4. 12

3-10. At what maximum time interval should you replace the frangible disks on low-pressure storage tanks?

1. 5 years
2. 7 years
3. 8 years
4. 12 years

3-11. What type of system can be used with dry chemicals?

1. Total flooding
2. Local application
3. Hose line
4. Each of the above

3-12. What is the most widely used dry chemical?

1. Nitrogen
2. Sodium bicarbonate
3. Monoammonium phosphate
4. Potassium phosphate

3-13. Dry chemicals are used primarily on what type of fires?

1. Flammable liquid
2. Cellulose nitrate
3. Dry wood
4. Delicate electrical equipment

3-14. The term “saponification” refers to what reaction between a dry chemical and a fire source?

1. Chemical neutralization
2. Conversion of fatty grease to soap
3. Electronic equipment reaction
4. Heavy metal reaction

3-15. What type of gas is used as a propellent for a dry chemical system?

1. Hydrogen
2. Oxygen
3. Nitrogen
4. Carbon dioxide

3-16. Dry chemical distribution systems should be constructed of what schedule of steel pipe?

1. 10
2. 20
3. 30
4. 40

3-17. What term, if any, is used to describe the special problem of inertia that must overcome in nozzle installation?

1. Pressure drop
2. Saponification
3. Balancing
4. None

3-18. What term is used to describe a water source developed for military use?

1. Water source
2. Water point
3. Water well
4. Water outlet

3-19. A total of how many gallons per minute are flowing in a stream that is 10 feet wide and has an average depth of 3 feet when the water is flowing at a velocity of 15 feet per minute?

1. 960
2. 1,920
3. 2,880
4. 3,350

3-20. Compute the quantity of water in a lake that is 100 feet long, 20 feet wide, has an average depth of 6 feet, and no run off?

1. 30,000 gallons
2. 60,000 gallons
3. 90,000 gallons
4. 120,000 gallons

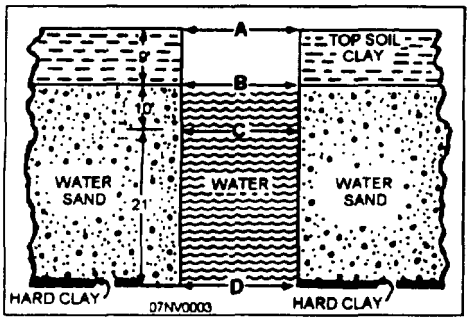

Figure 3B

IN ANSWERING QUESTIONS 3-21 THROUGH 3-23, REFER TO FIGURE 3B AND ASSUME THAT THE WATER STABILIZES AT POINT C AFTER CONTINUOUS PUMPING AT A CONSTANT RATE OF 50 GALLONS PER MINUTE.

3-21. The static level of the well is located at what point?

1. A
2. B
3. C
4. D

3-22. As measured from the ground surface, what is the dynamic water level of the well, in feet?

1. 9
2. 10
3. 19
4. 21

3-23. The amount of drawdown is equal to the distance between what points?

1. A and B
2. A and C
3. B and C
4. B and D

3-24. The yield of the well for a particular drawdown depends on which of the following factors?

1. Permeability of the topsoil and clay
2. Permeability of the water-bearing formation
3. Width or diameter and depth of the well
4. Depth from the surface to the static water level

3-25. Which of the following types of sand provides the greatest rate of flow during drawdown?

1. Fine sand with grains irregular in size
2. Fine sand with grains nearly uniform in size
3. Coarse sand with grains irregular in size
4. Coarse sand with grains nearly uniform in size

3-26. When determining the hydraulic characteristics of a well, you should not consider which of the following data?

1. Volume of water pumped per unit of time
2. Percolation rate per unit of time
3. Static water level before pumping
4. Pumping level at a constant pumping rate

3-27. The pump and power unit used for testing a well should be capable of continuous operation for a minimum of how many hours?

1. 24
2. 48
3. 72
4. 96

3-28. What should be the maximum operating rate of a pump for testing the yield of a well?

1. One that causes 50 percent of maximum possible drawdown
2. One that causes the maximum possible drawdown
3. Approximately 50 gpm
4. Approximately 100 gpm

3-29. The term “safe pumping yield” is defined as having what withdrawal rate?

1. A total of 50 percent of maximum drawdown without lowering the water table
2. A total of 75 percent of maximum drawdown without lowering the water table
3. An amount that allows for total recovery in 30 minutes or less
4. An amount that allows for total recovery in 1 hour or less

3-30. Relative to the initial development of a well, a complete test report includes the initial static water level, pumping rates, drawdown data, rate of recovery, and what other information?

1. Pump chart
2. Well chart
3. Bacteriological report
4. Water analysis report

3-31. In a temperate zone, what is the daily water consumption, in gallons, for one person marching in formation?

1. 1
2. 2
3. 1/2
4. 1 1/2

IN ANSWERING QUESTIONS 3-32 THROUGH 3-33, CONSIDER A GROUP OF 40 MEN IN A TEMPERATE ZONE WHERE THE TERRAIN IS LEVEL. YOU ARE EQUIPPED WITH FOUR LARGE TRUCKS AND TWO JEEPS.

3-32. When field rations are being used under combat conditions, what daily minimum individual water requirement should you consider appropriate?

1. 22 gallons
2. 42 gallons
3. 82 gallons
4. 102 gallons

3-33. Under peaceful conditions, you have set up a temporary camp with bathing facilities. What is the total daily water requirement?

1. 200 gallons
2. 401 gallons
3. 602 gallons
4. 1,200 gallons

3-34. What are the two classification of water impurities?

1. Suspended or bacteria
2. Suspended or dissolved
3. Dissolved or silt
4. Dissolved or bacteria

IN ANSWERING QUESTIONS 3-35 THROUGH 3-41, SELECT FROM COLUMN B THE EFFECT OF EACH WATER IMPURITY IN COLUMN A. RESPONSES MAY BE USED MORE THAN ONCE.

A. IMPURITIES	B. EFFECTS
3-35. Manganese	1. Alkalinity
3-36. Magnesium carbonate	2. Odor
3-37. Calcium bicarbonate	3. Brown water
3-38. Carbon dioxide	4. Corrosion of metal
3-39. Algae	
3-40. Calcium chloride	
3-41. Dissolved oxygen	

3-42. What data, if any, should you study to determine the variation in reliability that may be expected at a water source?

1. Geological
2. Hydrological
3. Bacteriological
4. None

3-43. At what level of government is the title to ground and surface water normally regulated within the United States?

1. Township
2. County
3. State
4. Federal

3-44. A temporary water source should not be converted into a permanent water source until after what activity has taken place?

1. A title search for water rights
2. An area search for a source requiring less development
3. An impurities examination by the medical officer
4. An inspection by the public works officer for additional free-flowing springs

3-45. The strainer on a suction hose should be placed a total of how many inches under the water level?

1. 6
2. 8
3. 3
4. 4

3-46. For a normal field water supply, what type of water source is the most accessible?

1. Well
2. Spring
3. Subsurface
4. Surface

3-47. In a swiftly flowing stream, what type of dam can be constructed to protect an intake screen without impounding the water?

1. Wing only
2. Baffle only
3. Wing or baffle
4. Ripple or wing

3-48. The quality of water from a muddy stream can be improved in which of the following ways?

1. By sinking shallow wells
2. By digging intake galleries
3. By filling unneeded trenches
4. By digging outtake galleries

3-49. Moisture is held beneath the surface of the earth in what total number of zones?

1. One
2. Two
3. Three
4. Four

3-50. Groundwater is the term used to describe underground water in what zone?

1. Filtration
2. Aeration
3. Saturation
4. Soil moisture

3-51. In a driven well, the sections of well pipe are delivered in lengths of what size?

1. 5 feet
2. 10 feet
3. 15 feet
4. 20 feet

3-52. When developed properly, springs yielding a minimum of how many gallons per minute can be used as a source of field water?

1. 5
2. 10
3. 15
4. 20

3-53. Refer to figure 9-6. What condition exists that requires the intake screen to be surrounded by coarse gravel?

1. The inlet hose is on a steep slope
2. The turbidity of the water is very high
3. The water source does not cover the screen by at least 4 inches
4. The water contains a large amount of suspended solids

3-54. Little or no consideration is given to the development of a thermal spring as a water source for which, if any, of the following reasons?

1. The high cost involved
2. The unreliability of such a spring
3. The likelihood of heavy mineral concentrations
4. None of the above

3-55. In the development of a spring, an impervious type of permanent structure should be used to protect the water source against

1. water from building drains only
2. surface water drainage only
3. rainwater only
4. water from all sources other than the spring

3-56. There is a total of how many classifications of wells?

1. Five
2. Seven
3. Three
4. Nine

3-57. A well that is dug is usually 3 feet in diameter or more and within what depth range?

1. 10 feet to 30 feet
2. 15 feet to 40 feet
3. 20 feet to 40 feet
4. 25 feet to 50 feet

3-58. A well can normally be bored within what maximum depth without fear of a cave-in?

1. 30 feet
2. 40 feet
3. 50 feet
4. 60 feet

3-59. When jetting a well, you turn the jet or frill slowly for what purpose?

1. To ensure the hole is straight
2. To assist in sinking the casing
3. To remove mud and sand
4. To extract muddy water

3-60. When a well is driven, the drive points are within what size range?

1. 1 inch to 3 inches
2. 2 1/4 inches to 3 inches
3. 3 inches to 4 inches
4. 1 1/4 inches to 2 inches

3-61. When a 2-inch well casing is used with a small self-priming centrifugal pump, water can be lifted from what maximum depth?

1. 24 feet
2. 48 feet
3. 72 feet
4. 96 feet

3-62. What is the purpose of a jar test?

1. To aid in the removal of turbidity
2. To indicate what chemical is necessary for coagulation
3. To determine whether the water is turbid
4. To provide sedimentation of the contents in the jar

3-63. To guard against subsurface contamination, you should locate rainwater catchment areas at what minimum distance from possible sources of contamination?

1. 25 feet
2. 50 feet
3. 75 feet
4. 100 feet

3-64. What minimum treatment is required for collected rainwater that is to be used as a water source?

1. Filtration only
2. Disinfection only
3. Filtration and disinfection
4. Aeration and filtration

3-65. A total of how many cubic feet of snow is required to produce 1 cubic foot of water?

1. 5
2. 7
3. 3
4. 9